

expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some reason to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. “The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art.” In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims. Independent claims 87 and 123 recite, among other features, a monodomain region which contains no grain boundary. For the reasons provided below, Fonash and Sakamoto, either alone or in combination, do not teach or suggest the above-referenced features of the present invention.

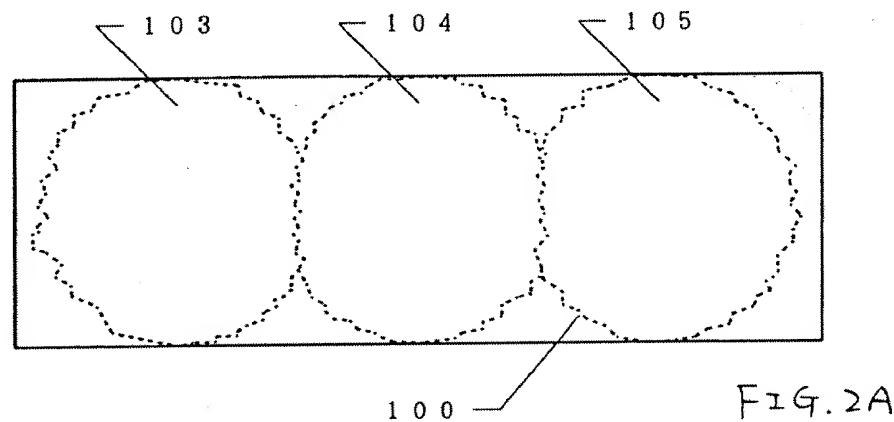
The Office Action appears to rely on an unreasonably broad interpretation of the explicitly recited feature “a monodomain region which contains no grain boundary,” and the interpretation is inconsistent with the plain teachings of the present specification. Also, the interpretation in the Office Action appears to be based on a reference, Takamura, which is not prior art with respect to the present application. Specifically, in the “Response to Arguments” section, the Office Action asserts the following: “(3) ... Applicants do not specifically define what ‘grain boundary’ is it appears that Applicants’ grain boundary is a boundary where two large enough grains are in contact with each other. (4) ... Takamura (US 5,534,716) ... discloses grain boundaries 6 and 7” (pages 11-12, Paper No. 20111006). The Office Action further asserts that “[b]ecause Applicants disclosed the identical process for crystallization of amorphous silicon to Takamura, Applicants’ ‘monodomain which contains no crystal grain boundary’ *in fact* contains some grain boundaries similar to the grain boundaries 6 and 7 of Takamura” (page 12, id., emphasis in original). Applicant respectfully disagrees and traverses the above-referenced assertions in the Office Action.

Initially, it is noted that Takamura is not prior art with respect to the present application (see, the *Response After Final Rejection* filed June 18, 2010, in which Takamura was removed as prior art due to the provisions of 35 U.S.C. § 103(c)). As such, any

discussion of Takemura with respect to the claims of the present application is inappropriate, and reconsideration of the rejection is requested for at least this reason.

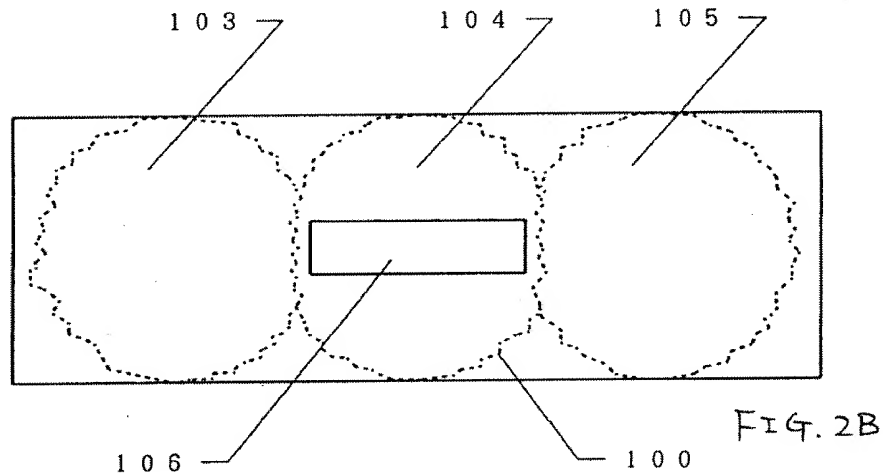
In any event, Applicant concedes that Takemura's process may be similar (if not identical) to that of the present invention. However, the similarity of Takemura's process is not inconsistent with a position that the present claims are distinguished from that of the cited prior art and even the teachings of Takemura. Specifically, despite the use of similar processes, the present claims are explicitly directed to a domain "which contains no grain boundary"; whereas, Takemura teaches grain boundaries. As such, there is no inconsistency. It is respectfully submitted that for the reasons explained in detail below, the Office Action is adopting a position that misrepresents the present invention.

A semiconductor film as crystallized by the methods disclosed in the preferred embodiments of the present invention does include grain boundaries as disclosed in Takemura. For example, as shown in Figure 2A (reproduced below), during the manufacturing process in a preferred embodiment of the present invention, a semiconductor film is crystallized to form "monodomain" regions 103, 104 and 105 but with grain boundaries 100 between these regions. That is, each of the monodomain regions 103, 104 and 105 does not have a grain boundary within the region.

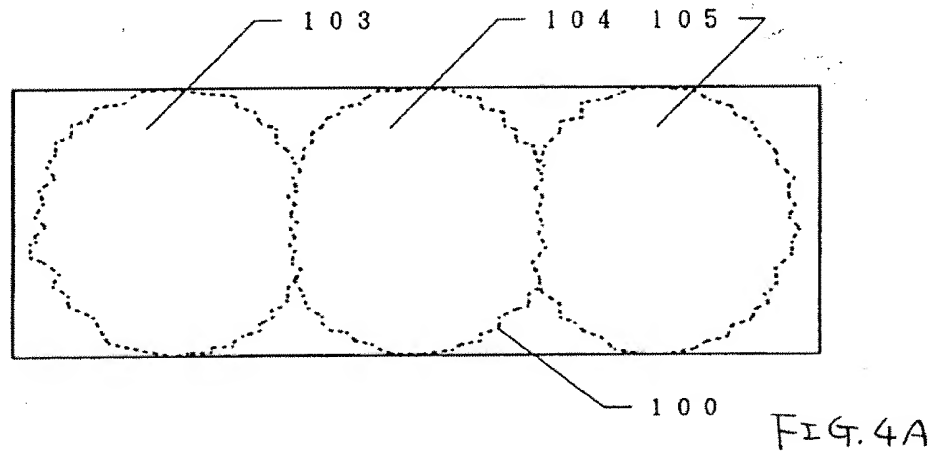


Please note, the original English specification includes a discussion about grain boundaries, i.e., "The monodomain regions 103 to 105 are adjacent to each other at a grain boundary 100" (page 18, lines 12-13). Therefore, it is respectfully submitted that there is no inconsistency between Takemura and the present invention.

As shown in Figure 2B (reproduced below), the semiconductor film is patterned so that an active layer 106 is formed within one of these monodomain regions to avoid the grain boundary.



The embodiment of Figures 4A and 4B (reproduced below) is similar to this but is different because the active layer 106 includes grain boundaries.



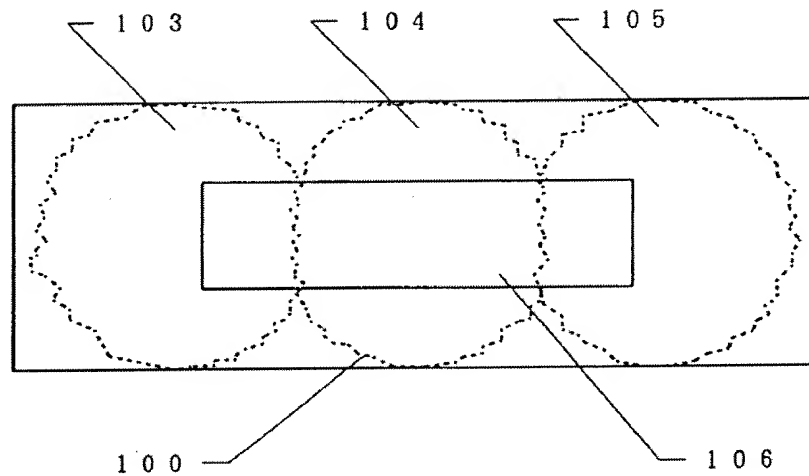


FIG. 4B

However, with respect to this embodiment, the present specification discloses that the channel forming region 109 is included in the monodomain region. Accordingly, while grain boundaries exist during the course of manufacturing steps in the present invention, the final structure does not include grain boundaries.

Also, as noted in MPEP § 2111, “[t]he broadest reasonable interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach. In re Cortright, 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999)” (emphasis added). It is respectfully submitted that those skilled in the art would recognize that a claim directed to “a monodomain region which contains no grain boundary” reads on the present specification including the examples discussed above. However, the Office Action appears to employ an interpretation that is not consistent with one that those skilled in the art would reach when reading the present specification in its entirety. Specifically, in the pending rejections, it seems that the Office Action is attempting to ignore the term “grain boundary” or give an interpretation to the term “grain boundary” (e.g., in the manner set forth in the “Response to Arguments” section), which is entirely unreasonable and which appears to be based on an incorrect understanding of the present invention.

Therefore, Applicant respectfully submits that Fonash and Sakamoto, either alone or in combination, do not teach or suggest a monodomain region which contains no grain boundary.

Since Fonash and Sakamoto do not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

The Office Action continues to reject claims 87, 90, 123 and 126 under the doctrine of obviousness-type double patenting over the combination of claims 1-4, 6, 8, 9 and 11 of U.S. Patent No. 5,614,733 to Zhang and U.S. Patent No. 4,766,477 to Nakagawa. The discussion in the present Office Action (pages 9-11, Paper No. 20111006) is substantially similar to that presented in the Office Action mailed May 10, 2011 (pages 10-11, Paper No. 20101217), and the "Response to Arguments" section does not appear to address the Applicant's arguments set forth at pages 6-7 of the *Amendment* filed August 10, 2011. Accordingly, these arguments are incorporated by reference, and Applicant respectfully requests consideration in view of these arguments.

It is respectfully submitted that the claims of the present application are not a timewise extension of the invention as claimed in the Zhang patent, either alone or in combination with Nakagawa. Reconsideration and withdrawal of the obviousness-type double patenting rejections are requested.

In view of the foregoing, Applicant respectfully requests allowance of the instant application. If a conference would be helpful in expediting prosecution of the instant application, the Examiner is invited to telephone the undersigned to arrange such a conference.

Respectfully submitted,

NIXON PEABODY, LLP

/Jeffrey L. Costellia, Reg. No. 35,483/
Jeffrey L. Costellia
Registration No. 35,483

NIXON PEABODY LLP
CUSTOMER NO.: 22204
401 9th Street, N.W., Suite 900
Washington, DC 20004
Tel: 202-585-8000
Fax: 202-585-8080